PYRAMID RESERVOIR

Introduction

Pyramid Lake is located on the eastern edge of Murdock Basin a thousand feet below the peak rising quickly to the west. It is located in an area of solitude and beauty with several other small lakes in the area at the base of Murdock Mountain. The reservoir shoreline is owned and administered by the Wasatch National Forest. with unrestricted public access. Water is used for coldwater aquatic life and recreation. No changes in water use are anticipated.

Characteristics and Morphometry

Lake elevation (meters / feet)	2,956 / 9,700
Surface area (hectares / acres)	4.7 / 14
Watershed area (hectares / acres)	77 / 190
Volume (m^3 / acre-feet)	
capacity	189,959 / 154
conservation pool	189,959 / 154
Annual inflow (m^3 / acre-feet)	Unknown
Retention time (years)	Unknown
Drawdown (m^3 / acre-feet)	0 / 0
Depth (meters / feet)	
maximum	34 / 10.4
mean	11 / 3.4
Length (meters / feet)	366 / 1,200
Width (meters / feet)	244 / 800
Shoreline (meters / feet)	975 / 3,200

Location

County	Duchesne
Longitude / Latitude	110 53 56 / 40 39 11
USGS Map	Mirror Lake, Utah, 1972
DeLorme's Utah Atlas and Gazetteer™	Page 54, B-3
Cataloging Unit	Duchesne (14060003)

Recreation

Pyramid Lake is accessible via State Highway 150 east out of Kamas, Utah. Approximately 22 miles east of Kamas take the Murdock Basin Road, a gravel road. This a relatively good road to Murdock Basin but the road past Pyramid Lake becomes very rocky and a high clearance vehicle should be utilized. Travel on this road for approximately 5.0 miles. This should bring you into Murdock Basin and near a junction in the road. To reach the lake turn left and travel about 0.2 miles to a trailhead area. The

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lake is a few hundred yards up the slope to the west. You can continue past the junction for about 0.3 miles to another junction. The road to the left goes to Pyramid Lake (turn left shortly after the junction for approximately 0.4 miles) or Echo Lake (continue straight ahead for approximately 0.6 miles) Fishing, boating, and camping occur in the area. Watercraft will need to be carried a minimum of a few hundred feet to the lake and camping is strictly primitive. Recreation use of the area is usually light but can get heavier around holidays. Although there are no improved campgrounds in the immediate area, there are several campgrounds within a short driving distance of the basin.

Limnological Data

Data sampled from STORET site: 593564

Surface Data	1981	1990	1992
Trophic Status	M	O	O
Chlorophyll TSI	-	30.60	34.58
Secchi Depth TSI	-	37.85	47.38
Phosphorous TSI	47.30	43.67	27.36
Average TSI	47.30	37.37	36.44
Chlorophyll a (ug/L)	-	1.0	1.5
Transparency (m)	-	4.65	2.40
Total Phosphorous (ug/L)	20	16	5
pH	7.8	7.35	7.60
Total Susp. Solids (mg/L)	5	1.5	1.5
Total Volatile Solids (mg/L)	-	-	-
Total Residual Solids (mg/L)	-	-	3
Temperature (°C / °f)	18/64	17/62	18/64
Conductivity (umhos.cm)	10	9	14
Water Column Data			
Ammonia (mg/L)	0.1	0.03	0.03
Nitrate/Nitrite (mg/L)	0.06	-	0.01
Hardness (mg/L)	-	6.6	8.4
Alkalinity (mg/L)	-	4	6
Silica (mg/L)	-	-	0.5
Total Phosphorous (ug/L)	20	18	8
Miscellaneous Data			
DO (Mg/l) at 75% depth	-	0.7	7.6
Stratification (m)	-	4-6	1-2
Limiting Nutrient	N	N	N
Depth at Deepest Site (m)	-	8.5	3

Watershed Description

Pyramid Lake is located in the western end of the High Uintas. The watershed is very small. The lake is perched on a bench high on the Duchesne River Gorge, and at the foot of an unnamed peak, a 1,000' high rocky escarpment rising westward above the lake.. The area is densely forested, interspersed with rocky peaks and barren peaks. In this area of the Uintas, glaciation has removed the majority of the high mountains, with isolated peaks remaining.

The watershed high point, the south arm of Murdock Mountain, is 3,243 m (10,640 ft) above sea level, thereby developing a complex slope of 47% to the reservoir. There are no streams flowing into the lake, but because of the high elevation, snowmelt runoff flows for much of the summer. There is no surface outflow.

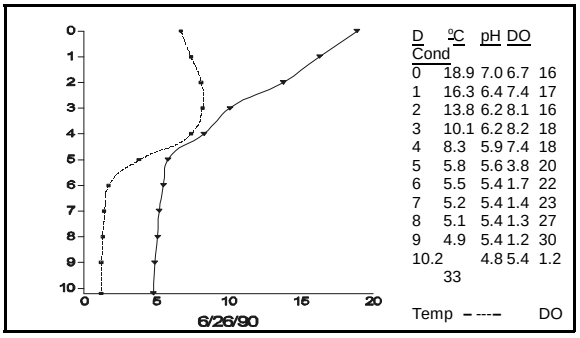
The watershed is made up of high mountains and rocky outcroppings. The soil associations that compose the watershed are listed in Appendix III.

The vegetation communities consist of pine, oak, maple, spruce-fir, aspen, and alpine. The watershed receives 76 - 102 cm (30 - 40 inches) of precipitation annually. The frost-free season around the reservoir is 0 - 20 days per year.

The use of watershed land is 100% recreation. The watershed is too high and rocky for many other uses.

Limnological Assessment

The water quality of Pyramid Lake is considered very good. It is considered to be very soft with a hardness concentration value of approximately 7.5 mg/L (CaCO3). Although there are no overall water column concentrations that exceed State water quality standards there are reported violations of parameters near the bottom or



surface of the lake. These parameters include dissolved oxygen and pH. At various times of the year oxygen deficiencies develop in the hypolimnion as indicated by the profile on June 26, 1990. It may be that anoxic conditions developed during the winter are still exerting an influence in the lower depths of the lake. There are anoxic conditions values reported during late summer. In August of 1990 there was no dissolved oxygen below the 8 meter depth. The pH values have dipped below criteria established for a cold water fishery as indicated in the profile.

Stratification is evident also but may be limited due to climatic conditions and the short duration of the summer period. Current data suggest that the reservoir is a nitrogen limited system. TSI values indicate the reservoir is oligotrophic in a state of low productivity.

According to DWR no fish kills have been reported in recent years. The reservoir supports a population of brook trout (*Salvelinus fontinalis*). The lake has not been treated for rough fish competition, so populations of native fishes may still be present in the lake. The lake has not been treated for rough fish competition, so native fishes could still
exist in the lake.

Phytoplankton in the euphotic zone include the following taxa (in order of dominance)

Species	Cell Volume (mm^3/liter)	% Density By Volume
Gomphosphaeria lacustris		3.339
71.15		
Quadrigula lacustris	1.112	23.69
Botryococcus sudeticus	.150	3.20
Merismopedia tenuissima		.025
1.18		
Oocystis sp.	.025	0.53
Chroococcus sp.	.011	0.24
Total	4.662	
Shannon Weaver [H']	0.79	
Species Evenness	0.44	
Species Richness [d]	0.23	

The phytoplankton community is dominated by the presence of blue-green and green algae.

Pollution Assessment

Nonpoint pollution sources include the following: sedimentation and nutrient loading from grazing, and litter or wastes from recreation.

There are no point sources of pollution in the watershed.

Beneficial Use Classification

Information

Management Agencies	
Uinta Basin Association of Governments	722-4518
Division of Wildlife Resources	538-4700
Division of Water Quality	538-6146
Wasatch-Cache National Forest	524-5030
Kamas Ranger District	783-4338
Recreation	
Dinosaurland Travel Region (Vernal)	798-6932

This lake currently is not classified for state beneficial use classifications.